

REFLECTIVE STRAIN GAUGE AND POLARIZATION-SENSITIVE DEVICES

Abstract of the Invention

5

A reflective strain gauge includes an holographically-formed polymer dispersed liquid crystal (H-PDLC) film comprising layers of liquid crystal (LC) droplets in a matrix polymer, the H-PDLC film having a reflection or transmission grating capable of reflecting or transmitting light of a selected wavelength, and

10 means for adhering the film to a surface of a workpiece for monitoring the strain at said surface. A change in the nature of the reflected light is an indication of strain. Also included is a polarizing material having an holographically-formed polymer dispersed liquid crystal (H-PDLC) film comprising layers of liquid crystal (LC) droplets in a matrix polymer, the H-PDLC film having a reflection grating capable

15 of reflecting light of a selected wavelength, wherein the reflection grating of the H-PDLC film is oriented, such that the refractive index parallel to said axis of orientation (n_e) is greater than the refractive index perpendicular to said axis (n_o).

50106.004001 reflective strain guage application.wpd